What is claimed:

1. A method for fabricating a multi-layer three-dimensional structure, comprising:

(i) processing a three-dimensional (3-D) description of the structure to obtain a plurality of 2-dimensional (2-D) descriptions of cross sections of said 3-D structure;

(ii) forming a first layer, comprising:

a) providing a first mask in contact with a substrate, wherein the mask has a first pattern of openings therein, and wherein the mask is formed using one of the plurality of 2-D descriptions;

b) depositing a first pattern of a first material from a source of the first material onto said substrate using the first mask to form a portion of a first layer;

c) removing the first mask from the substrate;

(iii) building additional layers adjacent to and adhered to previously formed layers using at least one other 2-D description.

2. The method of claim 1 wherein the first material comprises a sacrificial material or a structural material; and wherein the formation of the first layer, additionally comprises depositing a second material onto the substrate, wherein the second material comprises the other of a structural material or a sacrificial material.

3. The method of claim 1 further comprising, aligning the patterning for each mask with a structure on said substrate.

4. The method of claim 2 wherein the first material comprises a first metal.

1. The method of claim 4 wherein the second material is a second metal.

2. The method of claim 1 wherein the first metal is the sacrificial material and the second metal is the structural material.

3. The method of claim 1 wherein the first metal is the structural material and the second metal is the sacrificial material.

4. The method of claim 1 wherein the forming of the first layer comprises removing a portion of at least one of the deposited materials.

5. The method of claim 4 wherein the removing is performed during a process of planarizing a surface of the first layer.

6. The method of claim 1 wherein the first material comprises a sacrificial material and the second material comprises a structural material, and wherein the method additionally comprises:

(iii) releasing the structural material from the sacrificial material after formation of the multi-layer structure.

7. The method of claim 1 wherein the first material comprises a structural material and the second material comprises a sacrificial material, and wherein the method additionally comprises:

(iii) releasing the structural material from the sacrificial material after formation of the multi-layer structure.

8. The method of claim 1 wherein each cross-section description is spaced from adjacent cross-section descriptions by a desired layer thickness.

9. A method for fabricating a plurality of multi-layer three-dimensional structures, comprising:

(i) processing data descriptive of a three-dimensional (3-D) structure to produce multiple copies of the structure at a desired spacing;

(ii) forming a first layer, comprising:

a) providing a first mask in contact with a substrate, wherein the mask has a plurality of openings representing a deposition pattern associated with the formation of a cross-section of a plurality of three-dimensional structures;

b) depositing a first material from a source of the first material onto said substrate using the first mask to form a portion of a first layer;

c) removing the first mask from the substrate;

(iii) building additional layers adjacent to and adhered to previously formed layers to build up a plurality of three-dimensional structures.

10. The method of claim 9 wherein the first material comprises a sacrificial material or a structural material; and wherein the formation of the first layer, additionally comprises depositing a second material onto the substrate, wherein the second material comprises the other of a structural material or a sacrificial material.

11. The method of claim 10 wherein the first material comprises a first metal.

12. The method of claim 11 wherein the second material is a second metal.

13. The method of claim 12 wherein the first metal is the sacrificial material and the second metal is the structural material.

14. The method of claim 12 wherein the first metal is the structural material and the second metal is the sacrificial material.

15. The method of claim 9 wherein the forming of the first layer comprises removing a portion of at least one of the deposited materials.

16. The method of claim 15 wherein the removing is performed during a process of planarizing a surface of the first layer.

17. A method for fabricating a multi-layer three-dimensional structure, comprising:

(i) processing data descriptive of a three-dimensional (3-D) structure to scale the size of the structure;

(ii) forming a first layer, comprising:

a) providing a first mask in contact with a substrate, wherein the mask has at least one opening representing a deposition pattern associated with the formation of a cross-section of the scaled three-dimensional structure;

b) depositing a first material from a source of the first material onto said substrate using the first mask to form a portion of a first layer;

c) removing the first mask from the substrate;

(iii) building additional layers adjacent to and adhered to previously formed layers to build up a three-dimensional structure.

18. The method of claim 17 wherein the first material comprises a sacrificial material or a structural material; and wherein the formation of the first layer, additionally comprises depositing a second material onto the substrate, wherein the second material comprises the other of a structural material or a sacrificial material.

19. The method of claim 18 wherein the first material comprises a first metal.

20. The method of claim 19 wherein the second material is a second metal.

21. The method of claim 21 wherein the first metal is the sacrificial material and the second metal is the structural material.

22. The method of claim 21 wherein the first metal is the structural material and the second metal is the sacrificial material.

23. The method of claim 17 wherein the forming of the first layer comprises removing a portion of at least one of the deposited materials.

24. The method of claim 23 wherein the removing is performed during a process of planarizing a surface of the first layer.

25. A method for fabricating a multi-layer three-dimensional structure, comprising:

(i) processing data descriptive of a three-dimensional (3-D) structure to determine whether each cross-section is unique;

(ii) forming at least one tool for producing each mask that has a unique configuration;

(iii) forming a first layer, comprising:

a) providing a first mask in contact with a substrate, wherein the mask has at least one opening representing a deposition pattern associated with the formation of a cross-section of the scaled three-dimensional structure;

b) depositing a first material from a source of the first material onto said substrate using the first mask to form a portion of a first layer;

c) removing the first mask from the substrate;

(iii) building additional layers adjacent to and adhered to previously formed layers to build up a three-dimensional structure,

wherein the first mask is formed using at least one of the tools.

26. The method of claim 25 wherein at least one of the tools comprises a photomask.

27. The method of claim 25 wherein the first material comprises a first metal.

28. The method of claim 27 wherein the second material is a second metal.

29. The method of claim 28 wherein the first metal is the sacrificial material and the second metal is the structural material.

30. The method of claim 28 wherein the first metal is the structural material and the second metal is the sacrificial material.

31. The method of claim 25 wherein the forming of the first layer comprises removing a portion of at least one of the deposited materials.

32. The method of claim 31 wherein the removing is performed during a process of planarizing a surface of the first layer.